

two funicle segments together; pedicel twice as long as wide, as long as first funicle segment; funicle segments 1-4 subequal in length, each slightly more than twice as long as wide; club 2-segmented, four times as long as wide, as long as preceding two funicle segments together. Thorax yellowish brown except one large patch on scutum and two small patches on scutellum which are dark; mesoscutum and scutellum reticulately sculptured and with 5 and 2 pairs of setae respectively. Fore wings hyaline, two and a half times as long as wide; costal cell narrow; submarginal vein shorter than marginal vein; postmarginal vein absent. Hind wings hyaline, seven times as long as wide; marginal fringe long, as long as wing

width. Legs orange yellow. Abdomen orange yellow except base and lateral margins of dorsum which are infuscated; ovipositor concealed, arising from the base of abdomen.

Female length: 0.64 mm.

*Material examined.* 3 ♀, 2 ♂, ex Aleyroid, INDIA, Maharashtra, Nasik, 4.v.1969. Coll. S. Adam Shafee.

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### STUDIES ON THE SCARAB BEETLES (COLEOPTERA: SCARABAEIDAE) OF NORTH INDIA PART II. THREE NEW SPECIES AND TWO NEW RECORDS FROM INDIA<sup>1</sup>

S. BISWAS<sup>2</sup>

(With four text-figures)

Three new species, *Copris* (*S. str.*) *siangensis*, *Onitis assamensis* and *Drepanocerus kazirangensis* are described. Two species, *Drepanocerus runicus* Arrow and *Drepanocerus striatulus* Paulian are recorded for the first time from India.

1. *Copris* (*S. str.*) *siangensis*. sp. nov. (Figs. 1, 2)

<sup>1</sup> Accepted November 1978.

<sup>2</sup> Eastern Regional Station, Zoological Survey of India, Shillong-793 003, Meghalaya. Present address: Zoological Survey of India, 34, Chittaranjan Avenue, Calcutta-700 012.

MALE: Body elongated oval, highly convex, upper surface black and shining; mouth organs, antennae, legs and scanty hairs beneath reddish.

Head broad, almost semicircular, with a long, backwardly directed horn with two tubercles, placed posteriorly about one third dist-

ance from base; clypeus moderately strongly punctured, anterior margin reflexed and excised in the middle. Pronotum highly convex, strongly but unevenly punctured, anterior declivity feebly punctured and sides of mid-dorsal line almost smooth, upper margin of declivity with three sharp projections, middle one bifid at extremity; front angle blunt, truncated, hind angle obsolete, base rounded, lateral margin straight in front, rounded behind. Elytra strongly striate, striae closely punctured, interval a little convex, smooth and shining. Metasternal shield feebly punctured in the middle with a longitudinal groove; sides of metasternum bare, strongly punctured anteriorly. Front tibiae with 4 external teeth, apical spur broad toward apex. Pygidium strongly and uniformly punctured.

*Measurement:* Length, 12.0-13.5 mm; breadth 6.0-6.5 mm.

*Holotype*, ♂, collected from cattledung, India: Arunachal Pradesh, Siang: Along, 9.ii.1973 coll. R. S. Pillai, Regd. No. A1/4394. Paratypes 2 ♂♂, same data as for holotype.

*Remarks:* *Copris* (*S. str.*) *siangensis*, sp. nov. Comes near to *Copris* (*S. str.*) *delicatus* Arrow, but differs from the latter in having closely punctured clypeus and strongly developed prothoracic processes.

## 2. *Onitis assamensis* sp. nov. (Fig. 3)

**FEMALE:** Body broadly oval, not very convex; upper surface greenish, ventral surface brown, elytral suture and legs blackish.

Head subtriangular; with a short clypeo-frontal carina, posterior carina long, curved and entire, clypeus transversely rugulose, ocular lobes smooth, vertex deeply excavated, smooth posteriorly, finely tuberculate behind frontal tubercle. Pronotum very thinly and finely punctured anteriorly and laterally, closely and strongly in the middle near base; front

angles sharp, hind angles obsolete, base rounded; lateral margin straight in front, feebly sinuate behind, mid-dorsal groove or line absent, basal fovae not large and separated from each other by more than the length of the fovae. Elytra broadly but shallowly striate, striae more broader laterally, intervals flat, not perceptibly punctured. Metasternum smooth, bare, flat, with a shallow longitudinal groove, base with two deep pits, sides of metasternum closely granular and hairy. Pygidium almost smooth without hair.

*Measurement:* Length, 23.0 mm; breadth, 12.0 mm.

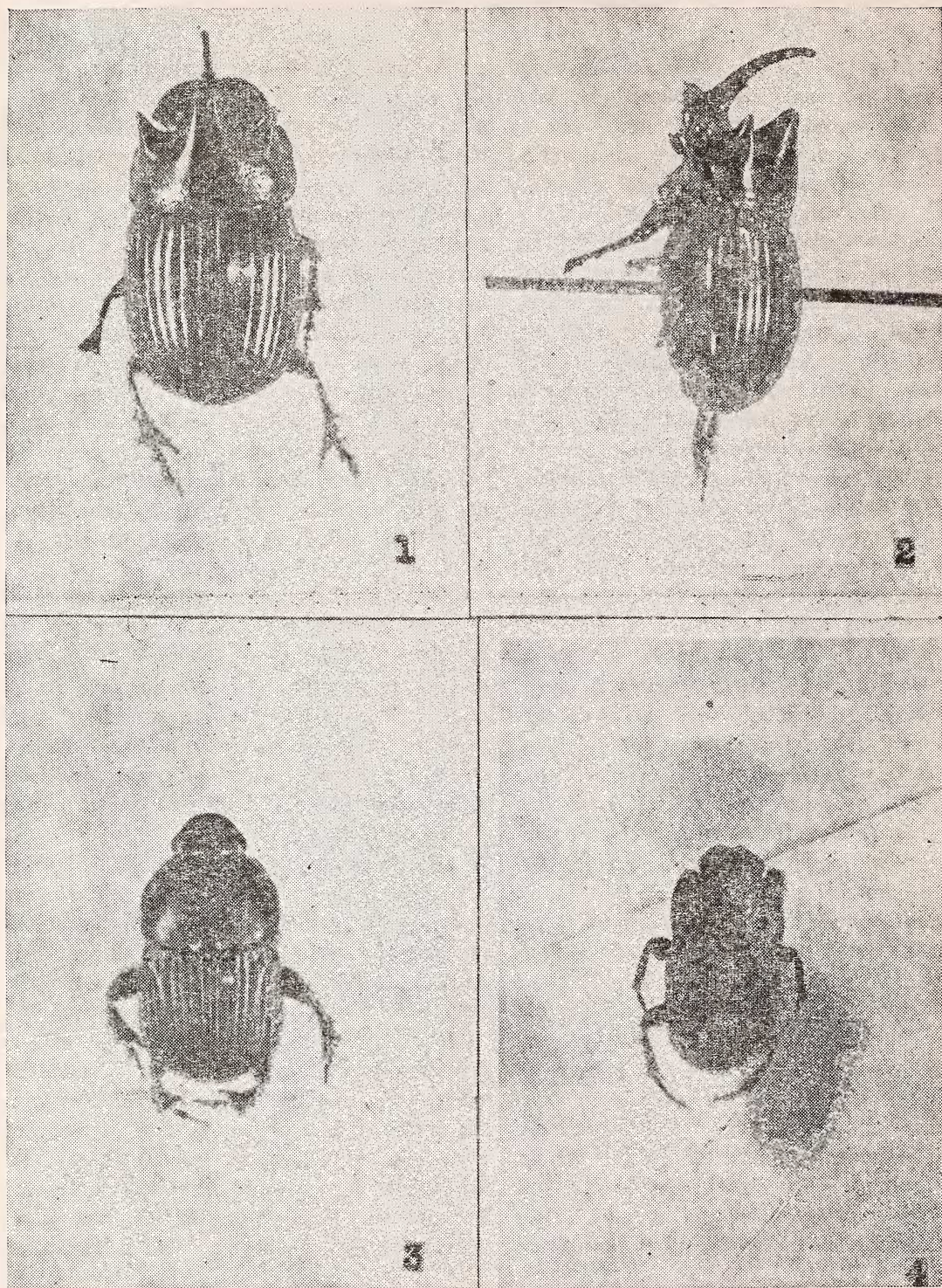
*Holotype*, ♀, collected from Rhinocerosdung, India: Assam: Kaziranga National Park, 21.xii.1972, coll. A. K. Ghosh, Regd. No. A1/4397.

*Remarks:* *Onitis assamensis* comes close to *O. humerosus* Pallas, but differs from it in the (i) pronotum anteriorly being very sparsely and feebly punctured (ii) absence of hairs on clypeal disc. The species appears to be very rare and only one specimen has so far been collected from the decaying Rhinoceros dung on upland area of Central path in Kaziranga National Park.

## 3. *Drepanocerus kazirangensis* sp. nov. (Fig. 4)

**MALE:** Body elongated oval, black; antennae, mouth organs, tibiae, and tarsi brownish, and covered above and beneath with pale setae.

Head closely punctured, clypeal margin deeply impressed in the middle, rounded at sides, clypeo-ocular junction marked by carinate suture and strongly angulate in front of eyes. Pronotum without carina, horns and tubercle, closely covered with large umblicate punctures, a basal depressed pit near base, three more smaller ones on either side of basal



Figs. 1-2. *Copris* (*S. Str.*) *siangensis* sp. nov.: 1. Dorsal view; 2. Lateral view.  
Fig. 3. *Onitis assamensis* sp. nov.: Dorsal view. Fig. 4. *Drepanecerus kazirangensis*  
sp. nov.: Dorsal view.

depression anteriorly basal depression highly convex and gradually sloping in front, front angle blunt, hind angle obsolete, base rounded, lateral margin straight, feebly sinuate behind. Elytra narrowly striate, striae not very closely punctured, intervals covered with minute granules, 3rd interval convex anteriorly, 5th interval throughout the length with a setose ridge and 7th with an interrupted one behind shoulders. Metasternal shield vertical in front, middorsally convex anteriorly, rugosely punctured, more so behind; sides of metasternum closely covered with large shallow pits. All femora rugosely punctured, front tibiae with four external teeth, apical one directed forward. Pygidium hollowed at base and apex, with an interrupted transverse ridge a narrow incomplete carina separating the basal depression into two halves. Last ventral sternite emarginate in the middle.

**FEMALE:** Same as male except with broad last ventral sternite.

**Measurement:** Length, 4.5-5.5 mm; breadth 2.5-3.0 mm.

**Holotype,** ♂, collected from dung of wild buffalo. India: Assam: Kaziranga National Park, 18.ii.1972. coll. G. M. Yazdani, Regd. No. A1/4777. Paratypes, 1 ♂, 4 ♀♀ data same as for holotype.

**Remarks:** *Drepanocerus kazirangensis* sp. nov. differs from *D. setosus* (Wied.), *D. sinicus* Harold, and *D. runicus* Arrow in having pronotum without any horn, carina or tubercle and from *D. striatulus* Paulian in having prosternum not being elevated behind front coxae. The species is peculiar in having single mid-dorsal depression in both sexes.

#### 4. *Drepanocerus runicus* Arrow.

*Drepanocerus runicus* Arrow, 1931. Fauna Brit. India, Lamell., 3: 384.

*Drepanocerus runicus* Arrow, Balthasar,

1963. Monogr. Scarab. Aphod. palaearkt. orient.; 2:66.

Arrow (1931) described the species from Burma: Karenhills: Asciiui Ghecu, Balthasar (1963) reported this species as being recorded also from Vietnam: Tonkin, Hoa Binh, Luc Nam. This is the first record of the species from India.

**Material examined:** INDIA: Assam: Goalpara, 4 ♂♂, 3 ♀♀, 17.i.1972. 1 ♂, 12.i.1972. North Cachar, 4 ♂♂, 3 ♀♀, 22.xi.1972. Manipur: Moreh, 3 ♂♂, 3 ♀♀, 21.i.1976. Meghalaya: Garo Hills, 9 ♂♂, 10 ♀♀, 8-15.iv.1973.

**Remarks:** Balthasar (op. cit.) considered the species to be rare. During the collection of Scarab beetles from different states in Northeast India it has been observed that the species is not rare but restricted to lower elevations upto c 1000 m. altitude and generally is not available in fresh dung. It is mostly confined to the dried crust of dung. When disturbed it withdraws its legs and remains motionless.

#### 5. *Drepanocerus striatulus* Paulian

*Drepanocerus striatulus* Paulian, 1945. Col. Scarab. de L' Indochine: 138, 140.

*Drepanocerus striatulus* Paulian, Balthasar, 1963. Monogr. Scarab. Aphod. palaearkt. orient., 2: 69.

Paulian described the species from North Vietnam (Personal Communication). Balthasar (1963) reported this species as being recorded also from China (Kouy Tscheu). This is the first record of the species from India.

**Material examined:** India: Assam: Sibsagar, 2 ♂♂, 2 ♀♀. 22.xii.1972. North Cachar, 7 ♂♂, 8 ♀♀. 22.xi.1972. Lakhimpur, 10 ♂♂, 1 ♀, 8.xi.1972. Manipur: 9 ♂♂, 9 ♀♀, 23-25.iii.1975. Meghalaya: Garo Hills, 8 ♂♂, 7 ♀♀, 8-17.iv.1973.